

Remarks

Regarding item 1, concerning the Declaration, a revised Declaration with a corrected title is attached.

Regarding the rejection of various claims under 35 U.S.C. §102 for anticipation by Goodman, the following comments are made. The present invention relates to a method of mapping a packet orientated client signal to a synchronous network payload. Claim 1 specifies:

"processing said client signal to a form suitable for mapping to said payload which preserves a buffer-to-buffer flow control mechanism of the client signal, wherein said step of processing reduces the bandwidth of the client signal while maintaining the integrity of a payload of the client signal".

An aim of this processing is to enable more efficient transmission of packet oriented protocols which can use a buffer-to-buffer flow control mechanism, such as Fibre Channel and ESCON, through a synchronous network. Such a flow control mechanism helps to ensure that the buffers of receiving and transmitting ports along a particular communications path do not overflow, which could cause data to be lost and/or retransmitted. Thus a scaleable bandwidth is provided through the synchronous network. It is acknowledged that it is known to do this by using complex protocol specific functions as part of the mapping into and out of the synchronous network. Notably the present invention enables such scaleable bandwidth to preserve the client flow control mechanism through the synchronous network without having to perform complex protocol specific functions. In particular the step of reducing the bandwidth while maintaining the payload integrity before the mapping can avoid the need for complex flow control or buffer credit management functionality, or any intermediate mapping to other OSI layer -2 protocols such as ATM.

Goodman is concerned with converting a variety of incoming digital signals into SDH/SONET format for transmission on a synchronous digital network, by identifying the line code of the incoming digital signal. By identifying line codes, there is no need to identify the format of each packet, and advantages of transparency can be combined with performance monitoring. Once the line codes are identified, then idle codes are replaced with headers to maintain the bit rate, or headers are added without removing idle codes, if bit rate increases can be tolerated. This is a completely different problem and solution which is not relevant to the present claim 1.

In particular there is no discussion in Goodman of the claim feature of reducing the bandwidth of an input signal to preserve a buffer to buffer flow control of a client signal. Maintaining such a buffer to buffer flow control of the client signal involves providing a scaleable bandwidth through the synchronous part of the path.

Goodman does discuss buffer overflow, but not buffer to buffer flow control of a client signal. It states at col 8 line 42 onwards :

"The data rate into an SDH trib at one end, and the data rate out of an SDH trib at the other, will not be identical. This means that from time to time it will be necessary to prevent buffer under/overflow at the destination. This will be achieved by stretching or shrinking the inter-packet gap. For fibrechannel this stretch or shrink will be in steps of 4 octets. (this is the behaviour referred to by Fibrechannel as a 'Retimer').

Preferably stretch/shrink only takes place during Idles (and not during other special sequences), and only infrequently as determined by clock differences. Therefore the data transfer technique employed needs to preserve the original interpacket gaps as much as possible. Especially unpredictable expansion of the interpacket gap should be avoided because extra SDH bandwidth would be needed to cater for it."

Since this stretching or shrinking is only concerned with overcoming clock differences, since these clock differences between different parts of a synchronous network are by definition as small as can be achieved practically, any such shrinking will happen so infrequently as to have no practical impact on bandwidth. This could not therefore be sufficient change in bandwidth to maintain any type of flow control of a client signal. In contrast, the present invention is concerned with actively reducing the bandwidth so as to provide a scalable bandwidth, sufficient to maintain such a flow control.

Accordingly, Goodman does not anticipate claim 1. Since Goodman in the above recited passage indicates that "the data transfer technique employed needs to preserve the original interpacket gaps as much as possible", it clearly leads away from the present invention. Thus there is no incentive for a skilled person to go against this teaching to reach the present invention, nor any suggestion of the advantages that can arise. Hence claim 1 cannot be obvious over Goodman.

Regarding the rejections of various claims under 35 U.S.C. §103 for obviousness, Pai is cited as showing IP supported by Fibre Channel and sent over a synchronous network. The reference concerns combining the functions implemented by a switch/hub element, router, and SONET ADM into a single unit that cooperates with a standard Server to provide direct connection between LANs, SANs and WANs. It does discuss Fibre Channel over SONET, but still does not show the distinctive features set out above of altering bandwidth to maintain a flow control mechanism of a client signal, and so cannot affect the reasoning set out above.

Heuer is cited as showing that the synchronous payload is modified in response to customer bandwidth demands. It shows transmitting user data over a synchronous digital communication network wherein the number of concatenated multiplex units can be adapted to the actually required bandwidth. This reference also does not

show the distinctive features set out above and so cannot affect the reasoning set out above.

Independent claim 16 has corresponding distinctive features of removing part of the client signal, preserving the buffer-to-buffer flow control mechanism of the client signal and maintaining the integrity of the payload of the client signal. Hence it is allowable for the same reasons.

Independent claim 20 is directed to a corresponding method of restoring a client signal by adding an ordered set while preserving the buffer-to-buffer flow control mechanism of the client signal and maintaining the integrity of the payload of the client signal. Since Goodman does not suggest the removing of such a part of the client signal, it cannot suggest a corresponding restoration of the signal. Hence this is allowable for the same reasons.

Independent claim 24 has corresponding distinctive features of removing part of the client signal, preserving the buffer-to-buffer flow control mechanism of the client signal and maintaining the integrity of the payload of the client signal. Hence it is allowable for the same reasons.

Independent claim 30 has corresponding distinctive features of reducing a bandwidth of the client signal, preserving the buffer-to-buffer flow control mechanism of the client signal and maintaining the integrity of the payload of the client signal. Hence it is allowable for the same reasons.

Independent claim 36 has corresponding distinctive features of removing redundant information from the packet oriented signal while maintaining the integrity of a payload of the packet oriented signal. Hence it is allowable for the same reasons.

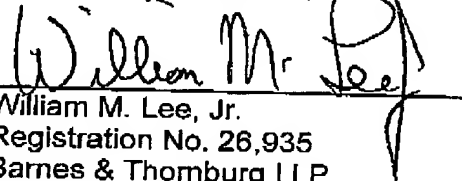
Other claims are dependent on an allowable main claim and so are allowable themselves.

Claim 7 has been modified to correct the lack of antecedent basis as suggested. Claim 29 has been deleted to overcome the rejection.

Accordingly all the points raised have been dealt with, all the claims are allowable and reconsideration is requested.

September 12, 2005

Respectfully submitted,



William M. Lee, Jr.
Registration No. 26,935
Barnes & Thornburg LLP
P.O. Box 2786
Chicago, Illinois 60690-2786
(312) 214-4800
(312) 759-5646 (fax)

CHDS01 WLEE 293821v1